Trend Study 4R-1-01

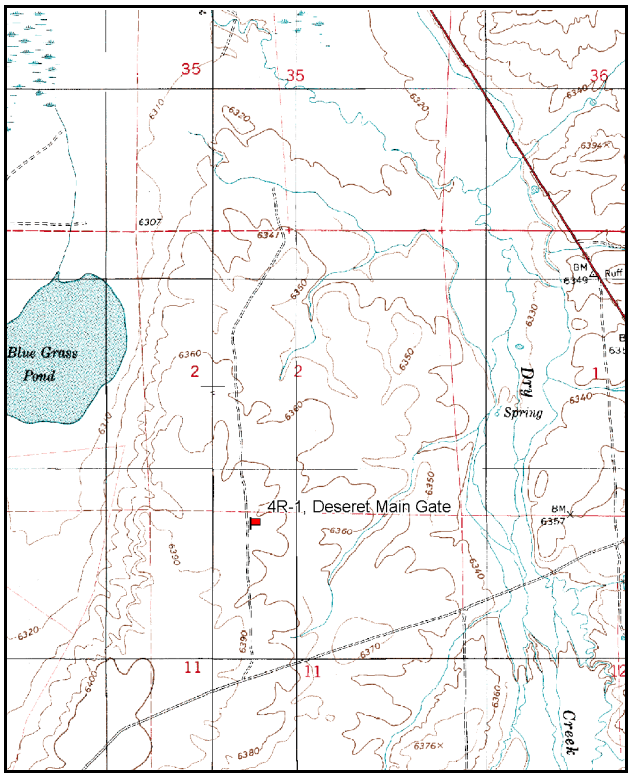
Study site name: Deseret Main Gate . Vegetation type: Big Sagebrush-Grass .

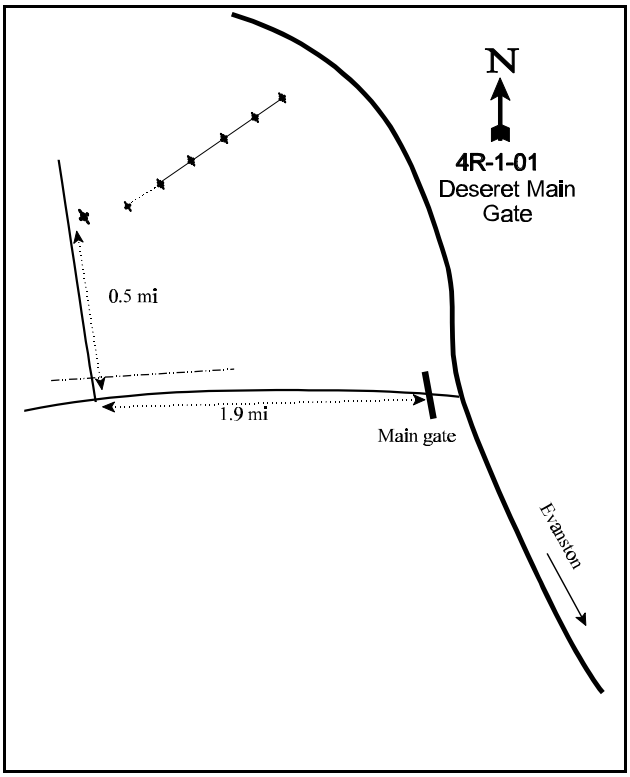
Compass bearing: frequency baseline 12 degrees magnetic.

Frequency belt placement: line 1(11ft), line 2(34 ft), line 3(59 ft), line 4(71 ft), line 5 (95 ft).

LOCATION DESCRIPTION

From the Deseret Land & Livestock main gate on highway 16 between Evanston and Woodruff, proceed west towards the Deseret ranch house 1.9 miles. Turn right and go 0.5 miles north to a witness post on the east side of the road. The 0-foot stake is 9 paces at 48 degrees magnetic.





Map Name: Neponset Reservoir NE Diagrammatic Sketch

Township 8N , Range 6E , Section 11 UTM 4588675 N 489762 E

DISCUSSION

Trend Study No. 4R-1

The Deseret Land and Livestock - Main Gate study is located near the ranch's east entrance off of Highway 16. The study was initially established in 1997, and reread in 2001. The study site is basically on flat terrain at an elevation of 6,400 feet. This area is used by elk, mule deer, pronghorn antelope, cattle, and sage grouse. A pellet group transect read along the vegetation baseline in 2001 estimated 19 elk days use/acre (48 edu/ha), 9 deer/pronghorn days use/acre (23/ha), and 53 cow days use/acre (131 cdu/ha). Two sage grouse pellet groups were sampled in the transect as well.

Soils have a loam texture and slightly acidic soil reaction (6.3 pH). Estimated effective rooting depth is over 14 inches. There is little rock or pavement on the soil surface or within the profile. Vegetation cover comes primarily from crested wheatgrass and Wyoming big sagebrush. Bare ground is fairly abundant at over 30% in 1997 and 2001, with most of this occurring in the interspaces between crested wheatgrass and/or sagebrush plants. Cryptogamic crusts are abundant and contribute to about 10% average cover. Erosion is minimal due to the gentle slope. Moderate pedestaling around sagebrush stems and crested wheatgrass clumps provide some evidence of past erosion. In 2001, an erosion condition class assessment showed soils to be stable.

The key browse species is Wyoming big sagebrush, which had an estimated density of 5,280 plants/acre in 1997. Density slightly increased to 5,780 plants/acre in 2001. Use on sagebrush was moderate to heavy in 1997, with use decreasing to a mostly light to moderate level in 2001. The proportion of the population classified as decadent is higher at 43% in 2001, an increase from 27% in 1997. Decadent plants classified as dying also increased from 520 plants/acre in 1997 to 660 plants/acre in 2001. Vigor is normal in the majority of the population with poor vigor being displayed on about 10% of the population in both sampling years. Recruitment from young plants is low. In 1997 and 2001, the average number of young sagebrush plants was 3 times less than the number of dead in the population. Annual leader growth was very low in 2001, averaging less than 1 inch.

Crested wheatgrass is the dominate understory species, contributing over 18% average cover in 2001. Some utilization was noted on crested wheatgrass in 2001. Only two other grasses were sampled on the site, Sandberg bluegrass and Indian ricegrass. Both species occur infrequently. Forbs are sparse, providing less than 1% average cover in both 1997 and 2001.

2001 TREND ASSESSMENT

Trend for soil is stable. Although bare ground is moderately high at 32%, cover from crested wheatgrass, litter, and cryptogams is well distributed and adequate to hold soils in place. Due to the nearly level terrain, erosion is minimal. Trend for browse is stable. The Wyoming big sagebrush population increased in percent decadency, but use decreased to a more moderate level and the proportion of plants displaying poor vigor remains about the same. The number of decadent plants classified as dying (660 plants/acre) is currently higher than the number of young in the population. This factor should be monitored closely for a possible decline in density in the future. Trend for the herbaceous understory is stable. Crested wheatgrass remains dominant with a slight increase in nested frequency. All other species are infrequent and unimportant on the site.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - stable (3)

HERBACEOUS TRENDS --
Herd unit 4R, Study no: 1

Type	Species	Nested Frequency '97	Nested Frequency '01	Quadrat Frequency '97	Quadrat Frequency '01	Average Cover % '97	Average Cover % '01
G	Agropyron cristatum	373	403	99	98	11.72	18.31
G	Oryzopsis hymenoides	-	3	-	1	-	.03
G	Poa secunda	6	*27	2	13	.03	.26
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		379	433	101	112	11.75	18.60
Total for Grasses		379	433	101	112	11.75	18.60
F	Alyssum alyssoides (a)	-	5	-	2	-	.03
F	Astragalus convallarius	-	11	-	3	-	.07
F	Descurainia pinnata (a)	-	1	-	1	-	.00
F	Phlox hoodii	10	22	5	9	.05	.14
F	Phlox longifolia	10	*-	6	-	.10	-
F	Trifolium spp.	-	2	-	1	-	.00
Total for Annual Forbs		0	6	0	3	0	0.03
Total for Perennial Forbs		20	35	11	13	0.15	0.22
Total for Forbs		20	41	11	16	0.15	0.26

* Indicates significant difference at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --
Herd unit 4R, Study no: 1

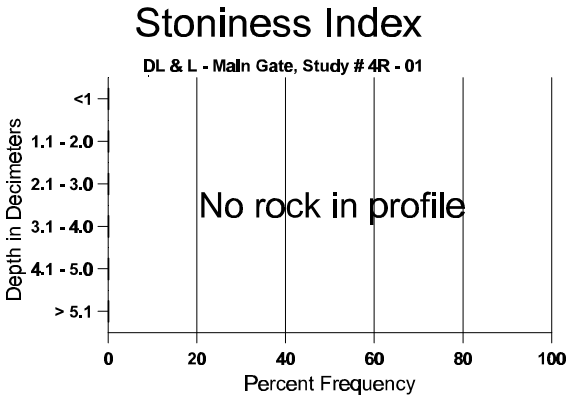
Type	Species	Strip Frequency '97	Strip Frequency '01	Average Cover % '97	Average Cover % '01
B	Artemisia tridentata wyomingensis	90	95	11.57	11.61
B	Atriplex gardneri falcata	3	9	.06	.31
B	Ceratoides lanata	0	2	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	60	46	1.27	.57
Total for Browse		153	152	12.91	12.50

BASIC COVER --
Herd unit 4R, Study no: 1

Cover Type	Nested Frequency		Average Cover %	
	'97	'01	'97	'01
Vegetation	386	410	21.86	28.14
Rock	109	27	.64	.08
Pavement	326	229	5.08	1.01
Litter	492	477	22.24	47.11
Cryptogams	279	240	9.64	10.44
Bare Ground	398	355	33.04	32.00

SOIL ANALYSIS DATA --
Herd Unit 4R, Study no: 01, Deseret Main Gate

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
14.6	69.6 (13.9)	6.3	48.0	28.1	23.9	1.5	22.1	185.6	0.4



PELLET GROUP FREQUENCY --
Herd unit 4R, Study no: 1

Type	Quadrat Frequency		Pellet Transect			
			Pellet Groups per Acre		Days Use per Acre (ha)	
	'97	'01	'97	'01	'97	'01
Rabbit	1	2	9	35	N/A	N/A
Grouse	1	-	35	17	N/A	N/A
Elk	24	5	487	252	38 (93)	19 (48)
Deer	22	8	557	122	43 (106)	9 (23)
Cattle	9	15	452	635	38 (93)	53 (131)

BROWSE CHARACTERISTICS --
Herd unit 4R, Study no: 1

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Artemisia tridentata wyomingensis																		
S	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
Y	97	5	4	2	-	-	-	-	-	-	11	-	-	-	220			11
	01	24	-	-	-	-	-	-	-	-	24	-	-	-	480			24
M	97	-	7	18	19	86	53	-	-	-	183	-	-	-	3660	14	22	183
	01	91	38	13	-	-	-	-	-	-	142	-	-	-	2840	12	20	142
D	97	-	3	9	2	28	28	-	-	-	44	-	-	26	1400			70
	01	55	47	15	6	-	-	-	-	-	90	-	-	33	2460			123
X	97	-	-	-	-	-	-	-	-	-	-	-	-	-	980			49
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	1140			57

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'97	48%	42%	10%	+ 9%
'01	29%	10%	11%	

Total Plants/Acre (excluding Dead & Seedlings)				
'97	5280	Dec:		27%
'01	5780			43%

Atriplex gardneri falcata																		
Y	97	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
	01	16	-	-	-	-	-	-	-	-	16	-	-	-	320			16
M	97	11	-	-	-	-	-	-	-	-	11	-	-	-	220	4	5	11
	01	33	-	-	-	-	-	-	-	-	33	-	-	-	660	3	4	33

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'97	00%	00%	00%	+73%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'97	260	Dec:		-
'01	980			-

Ceratoides lanata																		
M	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40	-	-	2

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'97	00%	00%	00%	
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)			
'97	0	Dec:	-
'01	40		-

AGE	YR	Form Class (No. of Plants) 1	2	3	4	5	6	7	8	9	Vigor Class 1	2	3	4	Plants Per Acre	Average (inches) Ht.	Cr.	Total
Chrysothamnus viscidiflorus viscidiflorus																		
Y	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	9	-	-	-	-	-	-	-	-	9	-	-	-	180			9
M	97	124	-	-	12	-	-	-	-	-	136	-	-	-	2720	6	8	136
	01	70	-	-	-	-	-	-	-	-	70	-	-	-	1400	4	6	70
D	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	12	-	-	-	-	-	-	-	-	12	-	-	-	240			12

% Plants Showing	Moderate Use	Heavy Use	Poor Vigor	%Change
'97	00%	00%	00%	-33%
'01	00%	00%	00%	

Total Plants/Acre (excluding Dead & Seedlings)				
'97	2720	Dec:		0%
'01	1820			13%